Subject: Motor Vehicle

Curriculum Staff: Nick Morrod and James Fearn

Key Stage 3 - Intention Statement:

Intention Overview:

Curriculum Knowledge	
The curriculum begins in Year 9 with an introduction to Health and Safety practices in the automotive environment. The students will study topics such as safety signs, good housekeeping (tidying and keeping tools clean), manual handling techniques, fire risks/assessments and key regulations linked to the Health and Safety at Work Act (1974). The 2nd part of the 15 week delivery includes understanding and identifying tools and equipment used in the automotive workshop. These will include hand tools, measuring devices, lifting/supporting equipment and methods to inspect fluid levels in a vehicle. During the lessons students will have opportunities to develop their hand-eye coordination when practicing small tasks in a workshop for example tightening and loosening a nut/bolt using a spanner or socket/ratchet. Industrial experience is usually relied upon to deliver key topics and adds a reality to lessons, which ignites and sparks interest in the subject. The KS3 curriculum provides the foundation for KS4 if students select this as an option.	
Essential Skills to Develop	
Subject Specific Skills Explaining the importance of good housekeeping Listing the key concepts of manual handling techniques Describing the main regulations linked to HASAWA (1974) Understanding fire and and key processes that cause it Risk assessments in the workshop How to use the appropriate PPE for specific tasks Safely using hand tools and measuring devices Reading data from measuring devices and scan tools	**Supportive Learning Skills and Attributes** Literacy - writing skills, spelling key vocabulary, using technical dictionaries Numeracy - interpreting data, reading graphs and measuring devices Using revision techniques through knowledge organisers Metacognition - dual coding, retrieval practice and space practice Solving problems and assessing risks
Cultural Capital (opportunities and experiences)	
• Links to local and national businesses that employ under 10 staff and over 500 staff, which are governed by the HASAWA (1974) • A greater understanding of employers/employees responsibilities in the workplace in the UK • Historical information about key regulations and how the HASAWA was implemented by government as a result of the Flixborough disaster • Addressing misconceptions about the Automotive industry and the rapid advances in technology; the introduction of Health and Safety processes when working on Hybrid and Electric vehicles • Insights into the MOT procedures when working on vehicles and the impact it has on vehicle safety/inspections from VOSA • Teaching students how to use tools in the appropriate manner and provide life skills that will last into adulthood • A deeper understanding of owning and driving a vehicle to ensure it's safe to use, how to replace a wheel on the roadside (safely), periodic checks on fluid levels and checking tyre pressures/tread	

Implementation:

- The curriculum is planned in advance and is regularly reviewed for content or changes in current legislation
- Resources are shared on the MVE drive with each other and knowledge organisers are checked for accuracy
- Revision is supported with the knowledge organisers, short UPK quizzes and end of unit assessments
- Students have the learning journey, worksheets and resources in plastic wallets as evidence of progress
- Homework is set on Google Classroom or worksheets (where applicable)

Measuring Impact:

- As the course has only been delivered for 2 years in full, we are hoping to increase numbers in KS4 options
- The KS4 qualification is a Technical Certificate therefore high expectations of behaviour and UPK are mandatory
- End of unit assessments are marked and RAGP rated, which is updated on SIMS marksheet entries
- Assessments are linked to the IMI (awarding body) criteria in KS4, which further supports KS3 underpinning knowledge

-

Key Stage 4 - Intention Statement:

Intention Overview:

<table>
<tr><th colspan="2">Curriculum Knowledge</th></tr>
<tr><td colspan="2">The KS4 curriculum continues with Health and Safety practices and Tools, Equipment and Materials. Hopefully the students will have retained some UPK from KS3 that will allow this to be delivered within 6 weeks as a fast track process. The new topics that are beginning to be introduced are Wheels & Tyres, Brakes, Steering & Suspension, Lubrication, Cooling, Exhaust and Engines.
Throughout KS4 there is a great emphasis on English, Maths and Science as most of the students will be enrolled on the Level 2 Certificate in Automotive Maintenance, which has been approved by the DfE as a Technical Certificate.
The emphasis in Year 10 is that they firstly identify and name the purpose and function of components linked to each system, this will consist of identification of parts and components within a vehicle and where they are located. Secondly they can then work safely and efficiently on practical tasks which involve removing and refitting parts using the correct procedures.
The main focus in KS4 is the development of higher knowledge in terms of using Maths and Science as good UPK in the curriculum. The written assessments and online tests are demanding in areas of calculation compression ratios, working out cubic capacity of engines, measuring and assessing valve clearances and explaining thermal energy transfer.
Other systems expect higher knowledge of oil viscosity indicators, the difference between hydrodynamic & boundary lubrication.
The criteria is achieved through a mixture of blended learning in the workshop and the technology aspects of motor vehicle engineering.</td></tr>
<tr><th colspan="2">Essential Skills to Develop</th></tr>
<tr><td>Subject Specific Skills
Identification of vehicle parts and components
Safely use hand tools and measuring devices
Learn how to operate lifting equipment safely - 2 post lift, trolley jacks & axle stands
Perform risk assessments before working on a vehicle
Safely use a tyre removal machine & wheel balancer
Use of compressed air in a safe manner
Underpinning knowledge of the 4 stroke cycle - engine layouts, configurations, difference between petrol & diesel
Procedures used to maintained specific systems
Identify symptoms and faults with individual systems</td><td>Supportive Learning Skills and Attributes
Literacy - writing skills, spelling key vocabulary, using technical dictionaries
Numeracy - interpreting data, reading graphs and measuring devices
Using revision techniques through knowledge organisers
Metacognition - dual coding, retrieval practice and space practice
Solving problems and assessing risks
Development of independent learning skills</td></tr>
<tr><th colspan="2">Cultural Capital (opportunities and experiences)</th></tr>
<tr><td colspan="2">● Addressing misconceptions about the Automotive industry and the rapid advances in technology; the introduction of Health and Safety processes when working on Hybrid and Electric vehicles
● Regular updates from the IMI (via a magazine) on new technologies and developments globally in the sector
● Insights into the MOT procedures when working on vehicles and the impact it has on vehicle safety/inspections from VOSA
● Teaching students how to use tools in the appropriate manner and provide life skills that will last into adulthood
● A deeper understanding of owning and driving a vehicle to ensure it's safe to use, how to replace a wheel on the roadside (safely), periodic checks on fluid levels and checking tyre pressures/tread
● Opportunities to examine MOT certificates, service schedules and parts ordered for vehicles, which link directly into the curriculum
● Prior to Covid-19 guest speakers, visits to dealerships and industry.</td></tr>
</table>

Implementation:

- Resources are shared on the MVE drive with each other and knowledge organisers are checked for accuracy
- Candidate Assessment Summary sheets are updated with each successfully achieved practical task in IMI workbook
- Written assessments are attempted after each topic has been delivered with adequate time for revision
- The curriculum overview is used to ensure all criteria has been delivered in a sequential manner
- Homework and additional resources are placed on Google Classroom

Measuring Impact:

- Practical assessments are bespoke to the individual student and recorded on the CAS forms in their IMI workbook
- Assessments are linked to the IMI (awarding body) criteria in KS5, which further supports KS4 underpinning knowledge

- Progress is monitored through SIMS marksheet entry and practical/written/online assessment success on the IMI tracker
- Evaluation of Progress 8 contribution to the whole school headline data measures
- DC analysis to support successful IMI EQA visits and approval of workbooks
- Results 2018 - 9 Pass
- Results 2019 - 5 Pass, 9 Merits
- Results 2020 - 15 Pass, 7 Merits, 2 Distinctions

Key Stage 5 - Intention Statement:

Intention Overview:

<table>
<tr><th colspan="2">Curriculum Knowledge</th></tr>
<tr><td colspan="2">Year 12 & Year 13 students can study on the Foundation Level 2 or Higher Level 2 qualification. This is dependent on previous experience or what level of qualification they have achieved in KS4. The curriculum content consists of the usual Health & Safety practices, Tools, Equipment & Materials and an introduction to the Automotive Businesses in the Industry. The Foundation Level 2 units include Health & Safety, Tools & Equipment, Spark Ignition Engines, Wheels & Tyres, Exhaust systems and Batteries & Electrical systems. There are 5 online assessments, 6 written assessments and practical tasks to achieve the qualification.
The Higher Level 2 qualification is listed on headline data and consists of the following units Health & Safety, Tools, Equipment & Materials, Job Roles in the Automotive Environment, Engine Mechanical, Lubrication, Heating & Cooling, Fuel, Ignition, Air & Exhaust, Electrical, Chassis and Transmission. Both courses require higher level practical skills that would be used in the industry and deeper underpinning knowledge of specific systems of the vehicle. These are supported by new technologies and the ability to use and interpret data from diagnostic equipment.</td></tr>
<tr><th colspan="2">Essential Skills to Develop</th></tr>
<tr><td>Subject Specific Skills
Procedures used to maintained specific systems
Identify symptoms and faults with individual systems
Working on a range of vehicles that include front wheel drive, rear wheel drive and 4 wheel drive
Diagnose faults and the ability to rectify issues/components
Perform service checks and inspections (writing written synoptic reports)
Procedures used to maintained specific systems (electrical, chassis, engine, lubrication, ignition)
Identify symptoms and faults with individual systems</td><td>Supportive Learning Skills and Attributes
Literacy - writing skills, spelling key vocabulary, using technical dictionaries
Numeracy - interpreting data, reading graphs and measuring devices
Metacognition - dual coding, retrieval practice and space practice
Solving problems and assessing risks
Development of independent learning skills
Preparation for work in the industry or any workplace</td></tr>
<tr><th colspan="2">Cultural Capital (opportunities and experiences)</th></tr>
<tr><td colspan="2">- Addressing misconceptions about the Automotive industry and the rapid advances in technology; the introduction of Health and Safety processes when working on Hybrid and Electric vehicles
- Regular updates from the IMI (via a magazine) on new technologies and developments globally in the sector
- Insights into the MOT procedures when working on vehicles and the impact it has on vehicle safety/inspections from VOSA
- Teaching students how to use tools in the appropriate manner and provide life skills that will last into adulthood
- A deeper understanding of owning and driving a vehicle to ensure it’s safe to use, how to replace a wheel on the roadside (safely), periodic checks on fluid levels and checking tyre pressures/tread
- Opportunities to examine MOT certificates, service schedules and parts ordered for vehicles, which link directly into the curriculum
- Prior to Covid-19 guest speakers, visits to dealerships and industry where a possibility (dependent on time)</td></tr>
</table>

Implementation:

- The Schemes of Learning support the awarding body criteria and are underpinned with industry standards throughout.

- The Vocationally Related Qualifications (VRQ) are ideal for school and college learners aged 16-19, as well as 19+ learners wishing to enter into the Vehicle Maintenance sector of the Automotive Industry.
- The qualifications are practical and engaging to motivate and support learners to gain key knowledge and skills required by vehicle maintenance employers, specialising in Light Vehicles.
- With mandatory requirements for employer engagement, learners get the opportunity to experience the real workplace environment (in Year 12 & 13).
- KS5 students have the opportunity to create their own revision resources that enable greater success in the written and online assessments.

Measuring Impact:

- Progress is monitored through SIMS marksheet entry and practical/written/online assessment success on the IMI tracker
- Practical assessments are bespoke to the individual student and recorded on the CAS forms in their IMI workbook
- DC analysis to ensure progress is consistent and to enable the department to adapt assessments and revision
- Headline data input and successful completion of online, written and practical tests including approval from EQA
- Results 2018 -
- Results 2019 - 3 Pass on Level 2 Certificate, 11 Pass on Level 2 Vehicle Inspection
- Results 2020 - 6 Pass on Level 2 Certificate, 10 Pass on Level 2 Vehicle Inspection